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THE GENESEE FARMER.

SATURDAY, MARCH 17, 1838.

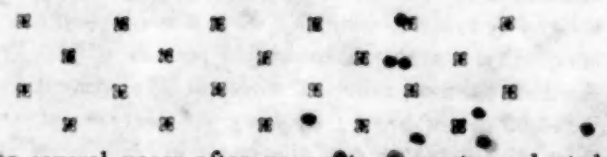
Culture of Fruit Trees.---No. 3.

THE APPLE.

When Apple trees for transplanting are to be raised, the stocks should always be from seed, and not from suckers, as the latter commonly furnish badly shaped roots; and as those varieties which produce suckers in greatest abundance are chosen, they are apt to be troublesome from this cause.

The transplanting of apple trees is generally performed with far too little care; though their hardiness is such as to enable them to endure bad management, the thriftiness resulting from good treatment far more than compensates for all additional labor. The mode of proper transplanting has been described in a former number. Where the quantity of land is small, such care is especially necessary.

It is now satisfactorily determined that apples are a most profitable crop for feeding domestic animals; hence larger orchards than have heretofore been raised, are becoming desirable. In many parts of the country, portions of farms, otherwise comparatively useless, may be thus occupied to advantage. Such are the sides of steep hills, and ground inconveniently encumbered with large stones Large orchards on good land will occupy less land if placed in the hexagonal form, thus:



For several years after young trees are transplanted, the ground should be constantly cultivated. This is easily performed so long as the trees remain small. When they become large, an occasional cultivation, with intervening crops of grass, may be sufficient for large orchards.

It is too common a practice to neglect almost totally, not only the cultivation of orchards, but *pruning*. Irregular and stunted trees, and small and inferior fruit, are the consequence. This may be prevented by moderate, frequent and judicious pruning, if the trees are not already very old. The object is to prevent too thick a growth, to increase the vigor of the branches, and to admit light and air. The straightest and most thrifty branches should be left, the distance asunder being as nearly equal as possible, and so as to form a well shaped top. The branches should be cut closely in pruning, but not so much so as to occasion too broad a wound. If the wounds thus caused, are an inch or more in diameter, they should be protected by a coat of thick paint, or of a mixture of brick-dust or whiting with warm tar. This prevents cracking, admission of moisture, and the consequent rotting of the branches. Pruning should never be done in spring when the sap is flowing, but may be performed either in winter or in summer. A sharp saw is the best tool for removing large limbs.

There are many orchards of ungrafted and comparatively worthless fruit, which might be greatly improved by changing the tops to good varieties. This is commonly done by grafting into limbs two or three inches in diameter, but this is more difficult to perform, and the young shoots are much more liable to be broken off by wind, than when grafted into small branches. A sufficient number of young and thrifty shoots may be obtained in one season for grafting on, by cutting off a few of the most central and larger limbs, when fresh ones will spring up vigorously in their place. As the grafted branches increase in size, the old ones are to be gradually removed.

It would be difficult, even for one extensively acquainted with the best varieties of the apple, to give a complete selected list; the difficulty is increased by the great uncertainty of names among cultivators, and the multiplicity of names for the same fruit in different places. Lindley says,

"In apples, a greater confusion exists in this respect, than in any other description of fruit. This arises not so much from the great number of varieties grown, as from the number of growers, some of whom seek to profit by their crops alone, regarding but little their nomenclature. Nurserymen, who are more anxious to grow a large stock for sale, than to be careful as to its character, are lead into error by taking it for granted that the name of the fruit they propagate is its correct one, and no other; hence arises the frequency of so many fruits being sold under wrong names. Gardeners, who purchase trees, become deceived by this procedure, and do not discover the error, unless they have been imposed upon by the substitutive of something *worthless*, and obviously at variance with the character of the fruit sold them. This is a serious evil, to say nothing of the disappointment of the purchaser; for unless the mistake be detected at first the longer the tree grows before it is discovered, the more time will have been lost by its cultivation; and, be it remembered, this time is irrecoverable."

It is care alone that can correct this evil; nurserymen should propagate a smaller number of varieties that they may the more successfully attend to the examination of the fruit to prove their genuineness,—because it is much better to cultivate a few select kinds, than a larger number of inferior quality, or whose names are involved in uncertainty. Purchasers must be careful to obtain them from those sources most to be depended on; or if they raise their own trees, they should if possible, obtain their grafts from trees whose genuineness has been proved by actual bearing.

In giving a short list of apples, it is to be remembered that there are a great many good varieties, and that many must therefore be omitted; and to some, such a list may seem badly selected, chiefly in consequence of the many inferior varieties which are called by the name of some excellent variety. The following list may assist the cultivator in selecting good varieties:

Summer Fruit.	Gravenstein,
Ecarly Red Juneating,	Stroat,
Early Harvest,	Fall Pippin,
Early Sweet Bough,	Alexander.
Summer Rose,	*Winter Fruit.*
Summer Pearmain,	Bellflower,
Sine Qua Non,	Swaar,
Woolman's Early,	Esopus Spitzenburg,
Buffington's Early.	Ortley,
Autumn Fruit.	Hubbardston Nonsuch,
Strawberry apple,	Baldwin,
Maiden's Blush,	Rhode Island Greening,
Sapsen,	Ribston Pippin,
Summer Queen,	Newton Pippin,
Rambo,	Roxbury Russet,
Autumnal Swaar,	Tallman Sweeting.

All of the preceding list, are in a greater or less degree, suitable for table fruit, and some of them are also peculiarly adapted to culinary purposes. As the day for the manufacture of cider is passing away, and a far more profitable use may be made of apples in feeding domestic animals, no varieties expressly for cider are given in the list.

To those who have but small gardens, the following are more particularly recommended:

Early Harvest,	Maiden's Blush,
Bough,	Fall Pippin,
Sine Qua Non,	Swaar, Baldwin,
Buffington's Early,	Spitzenberg,
Strawberry Apple,	Newtown Pippin,
Autumnal Swaar,	Hubbardston Nonsuch.

The following European varieties are highly recommended, but should not be extensively propagated until their adaptation to the climate of this country is satisfactorily ascertained, because many fruits of first rate excellence in one country, prove of little value in others. We are assured that many of the first American peaches, in England proved worthless; and on the other hand, many northern fruits, are found greatly to depreciate in warmer climates,—the *White Astracan* apple, for instance, which is described as a most excellent fruit in Russia, is pronounced at mediocrity at Paris, and in this country is of little value. The writer has observed that some English varieties recommended as first rate, are in this country much inferior to our best fruits.

Summer Fruit. Margaret, Spring Grove Codlin, Summer Golden Pippin.

Autumnal Fruit. Early Nonpareil, Keswick Codlin, King of the Pippins, Golden Pippin, Pine Apple Russet.

Winter Fruit. Old Nonpareil, Royal Pearmain, Hubbard's Pearmain, Barcelona Pearmain, Golden Harvey, Golden Reinette, Dutch Mignonne, Court of Wick, Cornish Aromatic.

The uses of apples are becoming yearly better understood, and their value constantly increasing to the farmer. It is now satisfactorily proved that they are not only excellent for fattening hogs, but are also equally so for feeding milch cows during winter. Horses may also be advantageously fed on *sweet* apples. For cows and hogs, the difference between sweet and sour apples is found to be far less than has been generally supposed. A moderate estimate of the expense of one acre of orchard, (remembering that the ground may be cultivated with crops while the orchard is young) will show the cost at from three to six cents per bushel; their value for feeding hogs has been proved to be much greater than the same quantity of potatoes.

The Diseases and Enemies to which the apple tree is subject, are generally not formidable. It has however sometimes serious ones to contend with. Among the chief are, 1. The Caterpillar. 2. The Borer. 3. The Canker. 4. The American Blight. 5. The Canker Worm.

1. *The Caterpillar.*—This has hitherto been the most formidable evil the apple has had to contend with in Western New York, and in fact the only one of any considerable extent. There are several species; but the only one which proves seriously injurious, appears in the spring as soon as the leaf buds begin to open, at which time it is not the tenth of an inch long nor so large as a cambric needle; it increases constantly in size for a few weeks till it is two inches long and a quarter of an inch in diameter. It then spins a cocoon and passes to the pupa state. In the latter part of summer, it changes to a brown miller, and deposites its eggs in cylindrical rings of several hundred each round the smaller branches. Every ring of eggs destroyed in fall or winter, which may be easily done by simply cutting off the small shoots which contain them, and burning them, will prevent a nest of caterpillars next season. If left till they hatch, they are easily killed when they first appear, by a caustic or poisonous solution, as of lime, ley, or of tobacco, applied to them with a cylindrical brush on a pole. The later the operation is deferred, their increased size renders the work more difficult.

2. *The Borer.*—This is an insect which enters and perforates the wood of the tree at or a little below the surface of the earth. In this section of country, they rarely become troublesome to the apple tree. They may be taken out and destroyed by introducing into the hole they they have made, a flexible, barbed wire.

3. *The Canker.*—This is sometimes termed *bitter rot.* It is ascribed to various causes. By some it is considered as arising from neglected culture,—poorness or wetness of soil,—or exposed situation. But the most probable, or the *immediate* cause, appears to be injudicious prunning, and bruises. Decay generally commences at the wounds thus caused, and extends till the tree dies. To prevent this evil, never prune in spring while the sap is in active motion, and protect all wounds of any considerable size from air and moisture, by a coat of paint or of

tar and brick dust. The only way to cure trees already diseased, is to cut away all affected parts, and apply a suitable covering to the wound.

4. *The American Blight*, (so called,) is caused by the *Aphis lanata*, a small insect so thickly covered with fine white hair as to appear enveloped in cotton. It is furnished with a small bristle like beak, with which it perforates the bark of the branches. Excressences rise, the limb grows sickly, and perishes. Branch after branch is assailed in turn, and the whole tree ultimately dies. It is easily destroyed on young trees, and older ones if recently attacked, by brushing over the affected parts a mixture of equal parts of fish oil and rosin melted together and applied warm. The operation should be performed as early in the season as possible, or when the insect is first perceived. In England, many trees have been greatly injured, and some destroyed by it. Although introduced into nurseries in this country, it has hitherto been but little troublesome, and if carefully watched will probably remain so.

5. *The Canker Worm*, where it has appeared, is perhaps the most destructive to apple trees of any insect in America, but it has hitherto been confined in its ravages to certain parts only of the country, particularly of New-England. Its habits are thus described by Kenrick:

"The canker worm, after it has finished its work of destruction in spring, descends to the earth, which it enters to the depth of from one to five inches. After the first frosts of October, or from the 15th or 20th, those nearest the surface usually begin to rise, transformed to grubs or millers. They usually rise in the night, and invariably direct their course to the tree, which they ascend, and deposit their eggs on the branches, which are hatched in April or May. They frequently rise during moderate weather in winter, when the ground is not frozen, and in March, and till towards the end of May. When the ground in spring has been bound by a long continuance of frost, and a thaw suddenly takes place they are said sometimes to ascend in incredible numbers."

They destroy all the leaves of the tree and thus eventually cause its death. The only effectual remedy yet devised is to prevent their ascent. This is commonly done by tarring. A circular portion of the bark is scraped smooth and the crevices filled with clay or mortar; a strip of canvass, and a large tow cord to prevent the tar running down, are then bound round the tree, and the tar applied. The operation must be performed daily, a little before sunset, throughout the season the insect continues to ascend. J. J. T.

Grinding or Steaming Food for Animals.

Our correspondent, Mr. GEDDES, of Onondaga co. has made some inquiries in the 7th number of the Farmer, (current volume,) as to the comparative benefits of grinding or steaming food for animals, and whether the last is a substitute for the first. The benefits of steamed food over that which is raw, have often been the subject of experiment, but we do not now recollect any instance in which the merits of grinding and steaming, as rival methods, have been fairly tested. Some facts, however, connected with the processes of cooking food would seem to indicate that in most cases steaming would be preferable to simple grinding.

All articles intended for food are rendered more nutritious, or are more easily converted into nutritive matter when taken into the stomach, by being subjected to certain preparatory processes; such as grinding or steaming, when the article is of a vegetable nature. Grain, when taken whole into the stomach of an animal, does not yield all the nutrition of which it is capable, and experiments have proved that the difference in favor of ground food over that which is whole, varies from one fourth to one third. Some indeed make the difference still greater, but we think without sufficient grounds of reliance. By using whole instead of ground grain, the loss to the farmer is equal to the difference stated above, which it will be seen at once is a serious drawback on the profits of a farm, and amply sufficient in the fattening of pork or beef to turn the scale of loss or gain to the producer. It is then clear that grain should be ground in order to yield the most nutriment to the animal, unless the nutritive matter can be rendered equally available by some method preferable for its ease and simplicity; a method which many believe is found in cooking or steaming.

This opinion would seem to derive much confirmation from the experiments of Raspail and Dumas, on nutritive substances, and the manner in which they are most effectual in producing this benefit.

These philosophers ascertained that the nutritive principle in vegetables is included in the farinaceous globules, commonly called starch, and that the more completely these could be reduced by separation or crushing the more was the active principle of nutrition developed. It was found, however, that grinding, though performed in the best manner, did but partially reduce these globules, and that consequently to ensure the whole benefit they should afford, some other expedient must be resorted to. Heat in this case was found an effectual agent. Globules that had been uninjured by grinding, were subjected to heat, and it was found that a temperature of 122° was sufficient to rupture the slight envelope that embraces the nutritive matter, and give the animal all the advantage that could be derived from food.

It would appear from these facts that ground food is far preferable to that which is whole, but that steaming is of all other processes the most effectual in developing the whole of the nutritive matter in any given substance.

Whether grain, say corn for example, would be as valuable for food if steamed whole, as it would if reduced by grinding before submitted to that process, may be doubted perhaps by some, though the fact that barley as food for horses or hogs when steamed, seems to readily give out all its nutritive properties, would appear to indicate that the same treatment would be equally effectual in the case of corn. In preparing all food for animals, it should be remembered that it has been proved by experiment, that concentrated nutritive matter, such as pure farina, cane sugar, essence of beef or osmazome, cannot long sustain life without some mixture of coarser and less nutritive food. Hence the decided advantage found in grinding corn with the cobs, or mixing cut straw or chaff with ground grain intended for feeding, a proper distention of the stomach being necessary to the purposes of digestion.

Presuming that Mr. Geddes is acquainted with the numerous testimonies in favor of steamed or cooked food, recorded in previous volumes of the Farmer, such as the experiments of Mr. Colman and others, we shall here only add a few proofs of the additional value given by this process to substances used as food, from late European publications. In the first volume of British Husbandry, it is said,—"The chief value of boiling or steaming the food of animals, seems to consist in rendering it more easy of digestion, and thus, perhaps, enabling them to retain a greater portion of its nutriment than when it is used in a crude state." Steamed food, too, is "more readily consumed, and consequently allows an animal more time for taking rest, a difference of more importance in its favor than may be generally imagined, for a horse takes from three to four hours to masticate a stone of hay while a mash of steamed food of double that weight may be taken in forty minutes."

Where roots form the chief article of food, as potatoes for pork or beef animals, "boiling or steaming has been found to impart to them a more fattening quality, for it has the effect of depriving vegetables of part of their watery juices, leaving only the farinaceous or other solid portions: thus potatoes lose about an eighth of their weight in steaming from the evaporation of water, and about one sixth if baked or kiln dried."

"The superiorty of the method of fattening cattle with food thus prepared by steaming, has been proved by many experiments; and it is affirmed, that some postmasters on the western road, having in consequence of a suggestion of the Bath Agricultural Society, boiled the oats for their horses, and given them the water for drink, have ascertained that a bushel given in that manner will maintain a horse in better condition than two in the common way. So broad an assertion may well be received with some hesitation; yet the experiment is worth a trial."

Loudon, in his Encyclopedia, makes the following remarks;—"Unless food be thoroughly deprived of its vegetative powers before it enters the stomach, the whole nourishment which it is capable of affording cannot be derived from it. In the case of the leaves and stalks of vegetables, this is in general effected by mastication; but it requires more care to accomplish it in the case of grains, hence the advantage of grinding. Hence too the propriety of mixing grain given to horses or cattle with chopped straw; and hence it is supposed by some that the instinct which fowls have to swallow small stones is intended by nature for the same object. But the most effectual way of destroying the living principle is by the application of heat; and if vegetable food of every kind could be steamed or boiled before it was given to animals (at least in winter, and for fattening for the shambles, or feeding for milk,) it is rendered probable, by analogy and experiment, that much greater quantities of nourishment would be derived from it."

But if potatoes and other roots are made more valuable by a loss of part of their weight in steaming; an effect directly the reverse, so far as regards weight, not value, is effected in steaming or cooking grains when ground, and probably also when whole, by which their nutritive power is greatly increased, and their value multiplied. This may be illustrated by the effect which takes place in the manufacture of hasty pudding, where a considerable quantity of water combines with the corn meal in such a way as greatly to add to, or promote the nutritive power of the meal used. This the experiments of Mr. Colman show conclusiuely. A more familiar instance, however, is the conversion of wheat flour into bread.

According to the experiments and analysis of Davy, 100 parts of wheat contain 95 of nutritive matter, or 60 pounds of wheat would yield 57 pounds of nutritive matter. In the manufacture of flour, good wheat produces about the following proportions:—

Fine flour.....	25½ lbs.
Household do.....	22½ do
Pollards or shorts..	8 "
Bran.....	2½ "
Waste.....	1½ "

The quantity of flour therefore is about forty-eight pounds to a bushel, and this is of the quality generally consumed by the farmer. In England a sack of flour weighs by law 280 pounds If this is of good marketable quality, a sack will make 371 pounds of bread; and the flour from a bushel of wheat at the same rate will make 63 lbs. of bread; showing an increase of weight from the combination of the water in cooking of nearly one third; and that its value as an article of nutrition is increased in a still greater ratio over that of the raw material, does not admit of a question.

An agricultural friend of ours of considerable experience in making pork for the market, gives it as his opinion derived from experiment, that corn steamed or boiled whole, is far better and more nutritive for swine, than when ground and fed to them dry, or simply wet at the time of feeding, as was the usual practice formerly; whether it would not be better if ground and made into pudding, he has had no means of ascertaining. We should imagine that a machine or mill for grinding corn with the cob, would be a very great acquisition to a farm where considerable quantities of that grain was grown and used, and they might be advantageously used for crushing all grains given to animals, such as oats and barley, even when it was not intended to submit them to the process of steaming, as the additional value thus conferred, for the reasons ginen above in preparing such substances for the action of the stomach, cannot be otherwise than beneficial. Independent, however, of the value conferred by grinding the cob of corn, we should consider it questionable whether the additional advantage afforded to nutrition by grinding over steaming alone, would compensate for the erection of fixtures for this purpose. The question is one of importance, and may be considered fairly open for experiment; and if any of our readers have had any experience on the topics suggested by Mr. Geddes, we should be most happy to give their communications a place in the Farmer.

Query No. 3.—Cutting Grass.

"At what time should grass be cut, so as to furnish the best and most valuable hay? Farmers in this country, and I think too in England, are much divided on this question; and it is desirable that it should be settled on correct principles. Important questions arise here;—Is the hay better, or not so good, for being cut early?—Which is it, early or late cutting, that does the most injury to the surviving roots, and tends most to lessen the next crop, and deteriorate the meadow?—How near to ripening its seeds should grass become, before it is cut?—If it stand till it is ripe or nearly so, do not the stems and leaves lose, in proportion to what is gained in seed? or in a greater proportion?—It is known that early cutting is favorable to keeping meadows and farms clear of foul weeds. Are these the only or principal advantages?"

A Farmer.

The proper solution of these queries in our opinion is mainly depending on two things; the kind of grass to be converted into hay, and the animals for which the hay is intended. The clovers, sainfoin, and lucerne, can hardly be allowed to stand late without parting with the most of their leaves, which in these grasses constitutes a very important portion of the plant; and as these grasses are in this country considered best for sheep and young cattle, if the stalk is allowed to become dry before cutting, these animals will refuse them almost entirely. There are other grasses commonly used in meadows, that may stand later with much less detriment, as these are intended for horses and cattle, and a little hardness of the principal stem with such animals does not form a serious hindrance to its mastication.

In this country we know of no experiments that have been made to test the value of grasses cut at different periods of maturity; but an extensive series were undertaken in Great Britain at Woburn, the seat of the Duke of Bedford; the samples furnished by Sinclair, and the chemical examination conducted by Davy. The result showed, that different grasses (and about 80 kinds were examined) varied much as to the period of their greatest nutriment, and that to determine the best time of cutting for hay, the effect of that operation on the aftermath was also to be taken into consideration; since if some were allowed to stand until the highest nutritive point was reached, including stem, leaf and seed, the damage done to the roots and the aftermath, was such as to more than counterbalance the advantages gained to the hay. We can only give as an example the *Dactylis glomerata*, cocksfoot or orchard grass; which in the Woburn tables is pronounced 'a most productive grass but rather coarse.' Cut when green, or at flowering, the produce per acre was of grass 27,905 pounds; of hay 17,859; of nutritive matter 1,080 pounds. Cut when the seed was ripe, the produce in grass was 26,544 pounds; of hay 13,272; of nutritive matter 1,451 pounds. The gain in nutriment therefore by letting the grass stand till dry, or the seed ripe was 362 lbs. but this gain in the hay crop was more than counterbalanced by the loss of the aftermath or rowen, which, where this grass stands until the seeds are ripe, is almost a total failure. If no regard then was had to the roots or the after vegetation, it would be better to cut when the seed is ripe; but when the value of the hay and the aftergrowth are both considered, the proper time of cutting is when the plant is in flower. With some of the other grasses the most nutritive matter was found at the time of flowering; this being the case with the *Poa pratensis*, smooth stalked meadow grass of Britain, spear or June grass of this country, the loss in nutritive matter when suffered to stand till the seed was ripe being 79 pounds per acre.

In the 'British Husbandry,' vol 1, page 488, it is remarked, that "It is thought by some persons that if the seeds of the grass be left to ripen, the hay will afford a greater quantity of nutritive matter, than if cut when in flower; but the value of the aftermath thus lost is often greater than the extra nutriment gained, for the ripening of the seeds not only weakens the future growth of the plants, but the after grass has not sufficient time to acquire strength. Mr. Sinclair (the gardener of the Duke of Bedford) states that he has found it in many instances reduced to less than one half in a given time after the seed crop, than when cut at the time of flowering; but he adds, he could never observe its bad effects extend in any degree to the following year."

Dr Darwin observes, that while the flowering stems of grass are shooting up, and during the whole process of fructification, every species of grass—but more especially those known by botanists under the designation of the tribes of *Poa* and *Festuca*—abound with sacharine matter. This, according to his idea, is found particularly in the joints of the grasses, where a secretion of sugar takes place, and it is probable that from this source, the subsequent nutriment afforded by the plant is in a great measure derived. As the seeds approach maturity, this sugar is found in less abundance; and when they are completely ripe, the object of nature being attained, the stem and leaves begin to decay.

The general conclusion at which the farmer would be apt to arrive from a review of the experiments made on this subject, and the authorities quoted, may be given in the words of the publication just quoted. 'The proper time for cutting the meadow grasses, therefore, would seem to be when these saccharine juices are in the greatest abundance; which appears to be when the seed is formed, but before it arrives at entire maturity; for if it be allowed to grow thoroughly ripe, not only will, in most cases, a nutritive portion of the plant be wasted, but the land will be more exhausted, and the roots of the plants more injured than if cut earlier.'

That cattle, sheep, or horses, will usually eat hay when cut very green better than that which stands until it is fully ripe, is generally admitted by farmers; that a ton of such hay will go as far, or in other words that it contains as much nutriment as that cut later, is as generally denied. If clover is used for hay it should be cut in a greener state than the common meadow grasses, for the reasons given above; and also for the fact, that if the seed ripens, it has a bad effect on the roots. The riper any grass gets, the more the nutritive matter is concentrated in the seeds; and as most grasses, when ripe, shed these freely, it is evident the loss of nutritive matter from ripe grasses must be much greater than when cut at a stage in which some juices remain in the stem, and the seeds in drying become more firmly attached.

The question of our correspondent—'If grass is suffered to stand till it is ripe or nearly so, do not the stems and leaves lose in proportion to what is gained in seed, or in a greater proportion?'—is perhaps satisfactorily answered by the following experiment of Dombasle on wheat, given by Chaptal, in his Chemical Agriculture.

"On the 20th of June, at the time of flowering, he selected, within a small space forty wheat plants of equal size and strength, each having three stalks bearing heads; he pulled 20 of the plants with all their roots, and left the rest to complete their fructification. Having carefully freed from earth, the roots of those he had taken up, he cut the stalks 2 inches above the base and dried separately the roots, and the stalks surmounted by their heads. The roots and the portion of the stalks remaining with them weighed, 657 grains. The stalks, heads, and leaves, 1946 grains, making a total of 2,603 grains. On the 28th of August, the time of harvest, he plucked up the 20 plants that had been left for seed, separating the roots, and cutting the stalks as at the first; of these the weight was as follows, Roots 419 grains; straw, husks and beards, 1318 grains; and the seeds or grain, 1025 grains, total 2763. During these two months, the roots and the portion of stalks adhering to them had lost 237 grains; the stalks, heads, and leaves had lost 624 grains; total loss 862 grains; but as the seed weighed 1025 grains the whole had increased in weighed 160 grains. From this experiment we may conclude, that the juices contained in plants at the time of flowering, contribute to the formation of the grain in the proportion of 862-1025ths and that the excess of the weight of the grain which is 160-1025ths arises from the nourishment which the plant absorbs from the air or soil, during the two months of fructification."

It is enough to say that the ripening of grasses and their seeds must follow the same rule.

"AMICUS."

We feel great pleasure in laying the friendly communication of Amicus before our readers. It is from the pen of a distinguished Virginian, a former contributor to the Farmer, and an active and influential patron of agriculture. He will be recognized as the writer of the interesting Observations on Western New-York, published in our last volume, from the 'Farmers Register,' Petersburgh, Va.

His remarks on the state of agriculture among us, both in the present paper, and in the observations alluded to, are most just, and should receive the careful attention of every farmer. Our soil is rich, but we have been negligent in adopting measures to prevent its exhaustion, and we must retrace our steps in this particular, or we shall find that while the 'father has been made rich, the son has been made poor.' Our landscapes are unequalled in beauty as adorned by nature; how much might that beauty be increased, if a spirit of improvement, directed by good taste, could be excited among our citizens. A few dollars expended in beautifying grounds now naked and bare, in planting trees, shrubbery, and in forming gardens, when combined with correct notions as to buildings, &c. would not only add vastly to the appearance of our farms, but materially increase their comfort and value.

The hints given by our correspondent on the subject of moral culture, are of the first importance. For a failure here, nothing can compensate. Wealth and power are as bubbles when weighed against the elevating influences of an intelligent and lofty morality. Wealth may minister to the gratification of the animal,—the mind, the Man, requires something purer and beyond, and in moral culture properly conducted, the mind at once finds excitement and repose. General utility,—to improve the mind as well as the body,—to elevate the farmer in every respect, has been our intention. In these respects we have been efficiently aided by our numerous contributors; and we confidently look, both to Amicus and and others for still farther assistance on the subjects by him pointed out, as well as the other legititmate topics embraced in the plan of our periodical.

Encouragement to Agriculture.

We have been politely favorved by the editor of the Cultivator with copies of *two Reports* made to the legislature on the 5th and 10th instants, by the Committee on Agriculture, through their Chairman, *L. F. Allen*, Esq. The first report was accompanied by a bill *to encourage the culture of silk*, the which we did not receive; but have no doubt, from the tenor of the report itself, that its provisions are salutary and will effectuate the object in view. The *second report* is also accompanied by a bill for the encouragement of general agriculture, which latter, we copy, as well as both the reports, believing it may be found useful to such other legislative bodies as may have the subject of encouragement to agriculture under consideration. We think the editor of the Cultivator for placing the documents thus early in our possession, as they are highly interesting, and reflect much credit on their author. Their facts are at once useful and instructive, and the arguments by which they are enforced no less conclusive than well expressed.

From all the indications which we see and read, we believe the period has arrived, when legislators are disposed not only to listen to statements of the wants of agriculturists, but when those wants will be provided for. Nothing, we are sure, but the most besotted infatuation of rulers can longer withhold that support so imperiously demanded by those peculiar circumstances by which the products of our land have been lessened in quantity, and the nation itself, reduced from the proud attitude of being the storehouse of other nations, whence to draw their bread stuffs, to a dependent upon Europe annually for upwards of seven or eight millions of dollars worth of those commodities for the consumption of our people. If the necessity for this importation arose from a too limited territory to produce supplies, the evil would be endurable; but as we have land in abundance to sustain a thousand times our present population, the fact of our not raising bread enough to meet our demands reflects any thing but credit upon us, and points with a force that should not be disregarded, a moral that we fain would hope will teach us the ways of wisdom.—*Farmer and Gardner.*

Proper soil for mulberry plantations.—Mulberry trees not only thrive best in a light loamy soil, but require a porous sub soil, which will permit their roots to descend without impediment. In a late visit which we made with a friend to the Farm School, Capt. Chandler showed us some mulberry trees which appeared rusty and mildewed, growing on an apparently rich loamy soil, but a *clay sub soil*. He also pointed out another parcel of mulberry trees, growing on a soil similar to that first mentioned in its upper stratum, but a sandy sub-soil, which were flourishing, the shoots vigorous, and the leaves a bright green, without spot or the least appearance of disease.—*N. E: Far.*

COMMUNICATIONS.

CONGRATULATIONS.

Permit a distant subscriber and an old correspondent to offer his congratulations on the improved appearance of the Genesee Farmer, and on the renewed and laudable zeal manifested by its editors and contributors, as indicated in the few numbers that have been issued of the current volume. That the same spirit may continue to animate them, and the usefulness of that valuable journal be more and more extended, must be the sincere wish of every person devoted to the interests of the ancient and honorable art of agriculture.

Amongst the many able and judicious periodicals of this character, perhaps there is none that from its locality and position, ought to exercise a more extensive influence, and stimulate the energies of a greater number of the agricultural community, than the Genesee Farmer. Printed in the heart of a fertile and populous country, it cannot be reasonably supposed that it would ever languish, or be under the necessity of soliciting an increase of patronage; but that it would rather be willingly and spontaneously sustained by all who are engaged in rural pursuits, and interested in their advancement.

Having within a few months past, enjoyed the pleasure of visiting Western New-York, I was struck with wonder at the extraordinary fertility of the soil—the extent of its population—its immense resources and facilities of trade;—at the many advantages, in short, which have been lavished upon it by nature with a bountiful hand, and committed to the careful improvement of man. If for its extent, the sun shines in his bright career, over a fairer region, I should not know in what part of the globe to designate it. If some portions of the earth have a milder and more luxurious climate, they labor under corresponding disadvantages in the enervating effects it is so apt to induce; and if in other regions the delicacies and luxuries of life are found in greater abundance, none can excel it in the production of all that is essential to the comfort and independence of man.

For such distinguished privileges, the farmers of Western New-York should show their constant gratitude by improving the soil to the highest state of productiveness. They should not remain content, as too many of them have done, with its natural fertility—which may become materially impaired by hard and continual cropping, before the habit is acquired of adding to its resources. Rich and beautiful as that favored country now is, it is susceptible of being beautified and enriched to even a much higher degree; and is destined under wise management, and when the attractions of the far west shall in some measure have faded from the vision, to sustain a population as numerous, and far more enlightened and independent, than exists in any of the countries of Europe.

It should therefore be no less a pleasure than a duty, for the conductors and correspondents of the Genesee Farmer, to exert all their energies in sustaining the interests of agriculture by the diffusion of valuable information—to elevate the national character by exhorting to habits of industry and perseverance—and to add line upon line and precept upon precept, until their voice is heard and obeyed in every part of their prosperous and flourishing country.

And while administering to temporal wants, might it not be well also to make the columns of the Farmer the vehicle of occasional attempts to improve the morals and exalt the understanding? To stimulate those whose energies are now lying dormant, to intellectual exertion; as well as to direct such as already possess enquiring minds, to the pursuit of those attainments in science and knowledge adapted to their various conditions in life, and calculated to assist in forming a just appreciation of all that is noble and wise and good? For the want of a little timely notice,

> "Full many a flower is born to blush unseen,
> And waste its fragrance on the desert air."

A passing hint, like seed dropped by the way side, might sometimes be improved and turned to good account.—For want of more congenial employment, how many persons there are, continually dabbling in the dirty pool of politics, or devoting themselves to grovelling and sensual pursuits, who might, by a proper and early direction, have been detached from such pollutions, and led by gradual and even willing steps to the attainment of rational and intellectual objects.

Virginia. AMICUS.

The Agriculturist and the Politician.

"It has long been considered as an incontrovertible proposition, approaching the nature of an axiom, 'That he who could make two ears of corn, or two bleades of grass grow, upon a spot where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together.'

"There never was a greater instance of sophistry, than this doctrine of Swift's, who seems not to have been at all aware of the immense benefits conferred upon agriculture, by a judicious system of civil policy. *In fact the prosperity of agriculture, depends on the politician.* The better and more equitable the civil government of a country, the more perfect will its agriculture become.—Those politicians or statesmen, therefore, who, by removing every obstacle, and furnishing every proper inducement, and encouragement to agriculture, promote its advancement, have a higher claim to the gratitude of mankind, than those who have merely performed a secondary or practical part, which part they could never have performed at all, but under the protection of wise laws, regularly administered, and executed with impartiality and vigor."—*Ext. from Sir John Sinclair's Works.*

I have seen the foregoing axiom of Swift's and the remarks of Sir John Sinclair, quoted in some of the journals of the day, with the appearance of considering the latter a refutation of the former. I do not think them so, but imagine there is at least as much sophistry in the remarks as in the axiom, and am still inclined to believe that Swift was not so wide of the mark as the remarks of that eminent agriculturist Sir John Sinclair, would indicate.

Swift, I understand as affirming, that the man who doubles the means of production and subsistence; who furnishes a greater reward for labor, and increases the comforts of the many; who by giving bread and clothing to the people, increases their happiness and civilization, does more to benefit his race than any or all the scheming, wrangling, theoretical politicians of his age or nation. I think Swift might have affirmed this in sober truth, and at the same time been perfectly aware of the immense benefit conferred upon agriculture by a judicious course of civil policy.

Food and clothing are the two great wants of mankind; and the necessity and aim of labor, and the end of wealth, is only an abundant supply of these things. The production of these prime articles of necessity is the creation of riches; and the tiller of the soil who cultivates and gathers the crops, the manufacturer who converts the raw materials produced by the earth or by animals into food or clothing, and the mechanic who furnishes the implements requisite for these purposes, are the only creators of absolute wealth. Commerce only aids in exchanging the labor of one part of the globe for another; it equalizes and distributes wealth; it may accumulate it in one part of the world, at the expense of another, but it has created nothing. Gold and silver are valuable only as facilitating exchanges, and conveying the profits of original labor from one country or one individual to another. Their indestructibility from the ordinary causes of decay, has induced the world to adopt these metals to represent the value of labor required to produce any given article; and the surplus of this representation, beyond the existing want, by enabling the holder to command at pleasure, and in any way he pleases, so much of the labor of others, is what is called wealth.

The difference then between the agriculturist, the manufacturer, and the mechanic; the men who produce the raw material and convert it to actual use, and the political economist or mere politician, consists in this,—the first create wealth, the latter teach how to manage and distribute it; the first convert their *labor* into gold and silver by exchanges, and coin in this way the sweat of their brow into dollars to increase the comforts of the many, or add to the nation's wealth; the politician cooly calculates the precise sum necessary to remain with the producer, and then sets himself at work to devise ways and means to dispose of the remainder.

The notions I entertain of the correctness of Swift's position may be illustrated by examples. Cotton had been grown as a curiosity and in gardens for years in the South, but in 1788 it was first raised as a field crop by a gentleman of South Carolina (it is to be regretted his name is lost) and his success was the stimulus to a course of agriculture that now furnishes eight hundred millions of pounds, worth one hundred millions annually for export. What southern politician by his political labors has done as much for the country?

By introducing the potato into Europe, Sir Walter Raleigh enabled that part of the world to support double the population it then possessed; that root gave sustenance to millions, and most materially aided to their comfort; since its general introduction, famines, always liable where the population relies on but one or two varieties of food, have been unknown; and in company with maize, the potato seems destined to make the circuit of the globe from west to east. What European politician can be named who has done as much for the happiness and comfort of that continent as has the potato?

Within fifty years the product of England in wheat has more than trebled, and in other articles of food and clothing does not fall much below the same proportions. The Edinburg Review attributes a very large proportion of this increase in bread and meat, or an annual value of sixty millions sterling, to the introduction and general culture of that simple hydrate of wood,* the Turnep. Roots feed cattle and sheep; the manure of these enrich the fields, and the result is abundant crops of wheat; again cattle and sheep make butcher's meat plenty, and butcher's meat and wheat bread, are now found daily on thousands of tables, where fifty years ago they were unknown. In this case, as in most others, a plentiful supply of food and clothing is but another name for a high degree of comfort. Who, of all the Smiths and Ricardos, the blue book political enconomists; or the red book political hangers on upon the British treasury, have done as much to add to the contentment, wealth and happiness of England, as '*Turnep Townsend*,' the name applied in derision to the nobleman who was most active in bringing the culture into notice?

Farther, I will suppose that the legislature of 1834, had yielded to the wishes of the agriculturists of this state, and by a suitable inducement had prompted some able and scientific individuals and farmers to enter upon an investigation and history of the wheat worm that has committed such ravages in this state, and which is so rapidly extending; with the methods of its propagation, and the discovery of an effectual preventive of its attacks; would not a successful result to such a series of investigation and labors, given a greater claim on the gratitude of the state, added more to the funds in the treasury, and given a greater impulse to the prosperity of the state, than the political labors of that and the legislatures that have since succeeded? The most moderate estimate that can be made of the loss by wheat worm, cannot be less than 300,000 barrels of flour annually for the last four years, or twelve hundred thousand, amounting at the average prices to twelve millions of dollars, for the four years. Perhaps I am mistaken, but I think the people of this state would infinitely prefer that sum of money added to the productive capital of the state, to all the political financiering and legislation, that has been dealt out to them by all men and all parties, in that time.

On the whole, I do not think that I, as a farmer, can be accused of serious error, when I declare my adherance to the maxim of Swift, in preference to the opinions

* See notice of Dr. Muse's Address, in the 2d number of the current vol. of the Gen. Farmer.

of Sinclair. If I wanted directions in farming, I would go to Sinclair; if I desired a correct and striking expression of general truths, commend me to Swift.

PLOUGH POINT.

Water Works Experiment.

No one can so well appreciate the value of good water as those who have suffered the privation. I have experienced for years much inconvonience from this cause, but the acme of all my sufferings was in the snowy winter of 1836. Not until then had I become resolved to attempt, at large expense, a project that might not succeed. The fountain I relied on was near 20 chains distant; a spring always living, but so small that the whole water in ordinary dry seasons might pass through a goose-quill. This small stream was conducted in leaden tubes about one half the distance, and discharged into a brick reservoir of twenty hogsheads capacity. The descent from the spring to the reservoir was gentle, but from the reservoir onward it was considerable. From the bottom of this artificial fountain a tube was introduced, which conducted the water to my buildings. I draw no water but what is wanted for present use, and to obviate the difficulty of freezing, I use the hydron in the barn-yard and elsewhere. With this small fountain, I have water for one dry pasture field in summer, my stock in winter, and for the use of my household, in abundance, and with a reservoir generally full, except in drouthy weather. In such cases in a few instances we have experienced some scarcity. On the whole it has more than equalled my expectations; it has been in operation over eighteen months; cost for the lead about $1,60 per rod; size of the tube 5-8ths of an inch. The reservoir and other fixtures was somewhat expensive. There has been much disappointment experienced by using light 1-2 inch tube which is peddled about the country, which has not sufficient strength to resist unavoidable pressure.

My tube was drawn by Mr. John Humphrey of Lansingburgh, whose work may be relied on.

Lansingburgh, March 8, 1838. ISAAC WALLACE.

HOOF-AIL.

MR. TUCKER—Your notice of the disastrous effects of this disease, in the Genesee Farmer of the 3d of February, and your call for information relative to the cause of that complaint, seems to have called the attention of a number of farmers to the subject; yet the cause of the disease, and the cure, remains not yet fully ascertained or generally concurred in.

It appears that Judge Bradley of Marcellus, is of opinion that the ergot of spear grass is the procuring cause of the disease, and recommends the disuse of that grass for the keeping of cattle. Whatever may be the cause, it would be highly important to the public to be discovered, and communicated by your valuable paper to the farmers of this country.

The result of my experience has fully satisfied me that the *sole* and *only* cause of the hoof-ail, is the freezing of the feet of the cattle, and not the consequence of any substance taken in the food, and that spear grass has no such deleterious effect. If the ergot is poisonous to the brute, the first effect would be felt in the maw and the intestines, and that sickness, and loss of appetite, and feverish symptoms would be discovered; and that the poison could not mix with the chyle, pass the lacteals into the blood, and from thence wholly deposited in the extremities of the feet, and there produce gangrene without affecting any other part of the body. The cause and effect seem to me to be too remote and disconnected. I cannot believe that spear grass will produce hoof-ail, for the following reasons: The meadows on my farm in Bloomfield I mowed for thirty years, and they were never ploughed except some small patches. The hay which I used for at least twenty-five years, was almost entirely spear grass; my usual crop was two tons and upwards to the acre; the usual number of my cattle was thirty head, and I have never had but *one* case of hoof-ail in my stock, and that I know to have been produced by frost, which was in March, 1820. My yearlings were kept in an enclosure with a good shed by themselves; one night a large steer broke in and occupied the shed; one of the yearlings lay out on the wet ground, there having been a thaw and rain the day previous; this night the weather became extremely cold, and a light snow had fallen. About sun rising I went to the yard, saw the yearling just getting up from its watery bed dripping with water, which soon formed into ice about the legs, and stepping in the light snow increased the ice about the feet and legs; I gave it its place in the shed and fed them with hay. I soon after discovered the animal was in pain; it refused its hay and began to kick with one hind leg; it lay down and shortly got up again. I was satisfied the frost was getting hold of the foot; I caught the animal and examined the foot, found ice between the hoofs and adhering together, and the skin for an inch above one hoof was hard frozen; I applied rubbing the leg with straw, and the struggling of the animal soon produced a circulation of the blood and removed the frost. In a week or two after the creature became lame and continued so for the summer, one of the hoofs grew out long and spongy, and never fully recovered its proper shape, but nearly recovered from lameness, and made a very good cow. Freezing can readily take place under certain circumstances; when cattle are drenched with rain, and the ground full of water, and the feet of the cattle in the mud, then the caloric or warmth in the legs of the animal is easily extracted by the effect of the water as a conductor of the heat from the limb to the water, and leaving the foot benumbed and the circulation so much obstructed as to allow the foot to freeze almost as soon as a potatoe. When such a temperature is succeeded by sudden freezing of the ground, and severe cold follows, as was frequently the case in the month of January last, one cold night may prove fatal to a whole herd of cattle.

One of my near neighbors in Bloomfield, whose barn-yard was flat and watered by the eaves of the barn and sheds, and whose cattle were shut in the yard, when the cold changes took place, his cattle nearly all died with the hoof-ail; and I can say in every case where I have known of the hoof-ail, it has been when cattle have lain in wet muddy yards, during the sudden changes of weather in the winter or spring. I frequently see barns set on a western descent, when the eaves and surface water settle in the same place where the cattle must take shelter from the cold blasts of the west and northwest. I have set all my barns on an eastern descent; I spread straw under and about the sheds, and leave the stock to range over the whole house lot; with this treatment I have no fear of the hoof-ail. When the skin and hair upon the legs of cattle are kept dry and clean, there is no danger of freezing, although the weather may be very cold, unless the cattle are very poor and weak.

There is a disease in the feet of cattle called the fouls, occasioned sometimes by sharp cornered gravel stones getting between the hoofs, and corroding the skin and flesh, producing inflammation; in such case the gravel or other substance should be removed.

Brooksgrove, March 6, 1838. MICAH BROOKS.

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MR. TUCKER—Seeing in your second number of the Monthly Genesee Farmer an inquiry by "M. R." concerning the hoof-ail, and as I have been much acquainted with the disease, and having suffered great losses from it, I will endeavor to give you a concise yet circumstantial account of the malady.

Pathology.—The cause of the ailment is the ergot or *black spur* in the *spear grass*—a substance well known to farmers in their rye fields, in wet hot seasons. The spear grass is liable to the same disease. The ergot or spur is from one quarter to three quarters of an inch long. I have known it so abundant as to bend the spire when wet with the dew almost to the ground. The operation is to weaken the circulation of the blood in the extremities of the cattle, so that their legs become feeble and cold, (I might add, their hind legs, for I have never known it to affect the fore legs of the cattle.) The first symptoms of disease which I have noticed, are a frequent stretching back of the leg diseased, accompanied with a shake, as they sometimes do when coming out of adhesive mud; and in a day or two the point of the hoofs begin to turn up and the dew-claws to approach the ground; showing that the intermediate portion is paralyzed. In ten or fifteen days, in many instances, the parts swell below the dew-claws, but without much heat; but about the dew-claws and above, there is great inflammation and swelling. If the disease affects both legs, the poor sufferer can with difficulty get about. In three or four weeks the dead parts crack away from the sound, and all below the main bone of the leg falls off and leaves a raw stump, with the dew-claws on the stump. If both legs are thus affected, the creature will die. I once had a two year old steer affected as above in one leg; it went through as above described; I protected the stump for awhile, and with much care and feed I raised him to good beef.

The above description is the worst form of the disease. It frequentlly affects only the hoof part, and then the living part within comes off with the hoof; this case is as fatal as the other. But in a milder form of the disease, the cattle are somewhat lame; they frequently shake their legs as above stated; their ankle joints give way a liitle and the point of the hoof turns up a little. In the following summer their hoofs are elongated and crook upward like a horn. I have seen some six or eight inches long. I have never seen the disease in a laboring ox; it generally attacks young cattle and cows. There is no relation between the fouls and the hoof-ail. The fouls is a disease of the summer, and generally attacks oxen that are employed in clearing land, when it is wet so that they are frequently in the ashes and mud. The other is a disease exclusively of the winter and spring, and more destructive to horned cattle than any other disease. John Whitman informed me that he lost in one season twenty head (if I remember right) of cattle. I lost twelve head of young cattle and cows in three years with the disease; but I have not seen it for seventeen years in this neighborhood.

A question will undoubtedly be asked by your readers, how do you know that the disease is produced by ergot or spur? I answer, only by experience. I have never known the disease only where the spear grass was infested with a great quantity of the ergot, and I have never known the cattle to escape the disease when it was.

One of my neighbors, a farmer, cut a load or two of hay on a moist part of his farm, heavily loaded with ergot; he was partly a believer in the above doctrine and put the hay by itself, concluding that if he should want it, he would thresh it before feeding; as the spring came on, he found that he must use the hay, and had no time to thresh off the ergot, and concluded that it might be a whim; but in two or three weeks he had four of his cows taken with the disease, and, if I do not forget, lost two of them.

Mr. Ellis, of the town of Dryden, had a large meadow about the same time loaded with ergot; he believed it to be the cause of the disease, and concluded not to cut it; but he had a doubting neighbor who was willing to cut it on shares, and when gathered Mr. E. burnt his part in the field; his neighbor put his into a stack, and as he lived nigh, got liberty to feed his cattle in the lot where his stack was; before he had fed up his hay every creature was lame, and I think not one survived the disease.

Mr. Leonard of Berkshire, twenty miles east of me, met with a similar disaster in his stock from a similar cause; and I could, I suppose, call to mind many more. One more I will relate. Five or six years since I was in Stratford, Ct., on a visit to a brother-in-law; he told me he had a strange disease among his cattle, and none of his neighbors or himself had ever seen the like; I went out with him, and was surprised to see the hoof-ail from its mildest to its severest form. The opinion was that the cattle had frozen their feet; but there were no other cattle lame from frost, and his shelters were better than his neighbors. The cause of their lameness was not to me of a doubtful nature, but that it was in his hay, and I described to him the ergot; he said he knew that there was

no such thing in his hay; I went with him into his barn and found his hay loaded with ergot; there was not a spear in his mow but what had more or less on it. But notwithstanding the diseased feet frequently freeze; but as a consequence, not a cause of it, I have found their feet after the disease had come on, frozen hard as a bone, and while frozen they can walk very well, as it keeps the joints from yielding to their weight as above stated.

I knew a family once fed for a while on rye which was full of ergot, not knowing the nature of it, that it was poison; after a few weeks the children became lame with excessive pains in the feet, and one was so much affected by it that its feet became livid, and it was by the greatest exertion that they were kept from mortifying. I mention this family as a full illustration of the tendency of the poison to the extremities. I have cut through the shell of the foot after a few days lameness, and found that there was no circulation within the shell. I have cut in above the hoofs in the bad cases, as soon as I saw they were established, and found there was no circulation in the diseased parts. The best remedies are spirits of turpentine with alcohol, bathed in, as soon as you discover the cattle shaking their feet as above described; but if they are fed on hay with ergot, remedies can be of little avail; but by the above remedies, if they can be put on clean timothy or clover hay, they may be saved.

I examine my meadows every season before I mow, and since the fatal seasons alluded to I have found but little. The spear grass is at best but a poor kind of hay; but if used for hay, it should be cut in the blossom or else let stand for the under growth until September, when the spears will have perished and the ergot fallen to the ground.

If you think the above of any use to the herdsmen of our country, it is at your disposal.

AN OBSERVER OF DISEASES.

Danby, Feb. 21, 1838.

COMPOSITION FOR BOOTS AND SHOES.—One part beeswax, and two parts tallow, melted together and put upon the leather, about as warm as a person can bear the finger in it, and dried in as near a fire as a person can bear the hand. After it is dried in, the leather may receive blacking in the usual way until the process is again renewed, and so on as long as the shoes or boots are exposed to wet. Experience will direct how often the composition should be renewed; perhaps once a week will be found in ordinary exposure sufficient.—*Farmers' Cabinet.*

WHY CREAM COLLECTS ON THE SURFACE OF MILK.—When a vessel of milk is allowed to remain a certain time at rest, it is observed that a stratum of fluid will collect at the surface, differing in many qualities from that upon which it rests. This is called *cream;* and the property by which it ascends to the surface is its relative levity; it is composed of the lightest particles of milk, which are in the first instance mixed generally in the fluid; but which, when the liquid is allowed to rest, gradually rise through it, and settle at the surface. [Dr. Lardner's Cabinet Cyclopœdia.—*Hydrostatics and Penumatics.*

FENCES.—Look to your fences, and see that they secure your orchards, grass and grain lands, against your horses, cattle and sheep. If your fences are bad, you have toiled in vain; all is at hazard; all is bad.

Report on Sheep.

At the late menting of the New-York State Agricultural Society, Mr. H. S. RANDALL, of Cortland, from the committee on sheep, submitted the following report:

The principal breeds of sheep in the United States are the "native," (so called;) the Spanish and Saxon Merinos, introduced from the countries whose names they bear; and the New-Leicester or Bakewell, the South Down, and some minor importations of Cotswold, Lincolnshire, &c. from England. Chancellor Livingston also speaks of two races as "indigenous" to this country, which we have not enumerated, as it is now known to the committee that they are now bred in any portion of the United States, viz. the Ottor and Smith's Island sheep, breeds said to have been discovered on two islands on our Atlantic coast. An almost infinite variety of crosses have taken place between the Spanish, English, and "native" families. To so great an extent indeed has this been carried, that there are, comparatively speaking, few flocks in the United States, that preserve entire the distinctive characteristics of any one breed, or that can lay claim to unmixed purity of blood.

NATIVE SHEEP.

Although this name is popularly applied to the common coarse woolled sheep of the country, which existed here previously to the importation of the improved breeds, there is, properly speaking, no race of sheep "native" to North America. Mr. Livingston, in speaking of a race as "indigenous," only quoted the language of another,* and his informant was either mistaken as to the fact, or misapprehended the term. The only animal of the genus *Ovis*, originally inhabiting this country, is the Argali,† known to our enterprising travellers and traders who have penetrated to the Rocky Mountains, where the animal is found, as the Big Horn. Though the pelage of the argali approximates but little to the wool of the domestic sheep, they are, as is well known, considered by naturalists, to have belonged originally to the same species; and the changes which have taken place in the form, covering, and habits of the latter, are attributed to his domestication, and the care and skill of man during a long succession of years.

The common sheep of the United States were of foreign, and mostly of English origin. The writer of the volume on sheep in the "Farmer's Series," (Mr. Youatt,) speaks of them as "although somewhat differing in various districts, consisting chiefly of a coarse kind of Leicester, originally of British breed."‡ Others have seen, or fancied they saw, in some of them a strong resemblance to the South Downs. Mr. Livingston was of this number.§ But it is far more probable that they can claim a common descent from no one stock. Our ancestors emigrated from different sections of the British dominions, and some portion of them from other parts of Europe. They brought their implements of husbandry, and their domestic animals to fertilize the wilderness. Each, it would be natural to suppose, made choice of the favorite breed of his own immediate district, to transport to the New World, and the admixture of these various races formed the mongrel family now under consideration. Amid the perils of war and the incursions of beasts of prey, they were preserved with sedulous care. As early as 1676, Mr. Edward Randolph, in a "Narrative to the Lords of the Privy Seal," speaks of New-England as "abounding with sheep."‖

The common sheep yielded a wool only suited to the coarest fabrics, averaging, in the hands of good farmers, from three to three and a half pounds of wool to the fleece. They were slow in arriving to maturity, compared with the improved English breeds, and yielded when fully grown, from ten to twelve pounds of a middling quality of mutton to the quarter. They were usually long legged, light in the fore quarter, and narrow on the breast and back, although some rare instances might be found of flocks with the short legs, and some approximation to the general form of the improved breeds. The common sheep were excellent breeders, often rearing, almost entirely destitute of care, and without shelter, one hundred per cent of lambs, and in small flocks a still larger proportion. These, too, were usually dropped in March, or the earlier part of April. Restless in their disposition, their impatience of restraint almost equalled that of the untamed argali, from which they were descended, and in many sections of our country it was common to see from twenty to fifty of them roving with little regard to inclosures, over the possessions of their owner and his neighbors, leaving a large portion of their wool adhering to bushes and thorns, and the remainder placed nearly beyond the possibility of carding by the burs of the *Tory bur*, so common on new lands.

The old common stock of sheep, as a distinct family, have nearly disappeared, having been universally crossed, to a greater or less extent, with the foreign breeds of later introduction. The first and second cross with the Merino, resulted in a decided improvement; and produced a variety exceedingly valuable for the farmer, who rears wool only for domestic purposes. The fleeces are of uneven fineness, being hairy on the thighs, dewlap, &c.; but the general quality is much improved; the quantity is considerably augmented; the carcase is more compact and nearer the ground; and they have lost their unquiet and roving propensities. The cross with the Saxon, for reasons which we shall hereafter allude to, has not been generally so successful. With the Leicester and Downs, the improvement, so far as form, size and a propensity to take on fat are concerned, is manifest.

SPANISH MERINO.

The history of this celebrated race of sheep, so far as it is known, has so often been brought before the public, that it is deemed unnecessary here to recapitulate it. The first importation of them into the United States, took place in 1801. Four rams were shipped by Mr. Delessart, a banker of Paris, three of which perished on the passage.* The fourth arrived in safety at Rosendale, a farm owned by that gentleman near Kingston, in this state. In 1802, two pair were sent from France by Mr. Livingston, the American minister, to his estate on the Hudson; and later the same year, Mr. Humphreys, our Spanish minister, shipped one hundred, on his departure from that country, for the United States. But they attracted little notice until our difficulties with England led to a cessation of commercial intercourse with that power in 1808 and 1809. The attention of the country being now directed towards manufacturing and wool growing, the Merino rose into importance. So great indeed was the interest excited, that from a thousand to fourteen hundred dollars a head, was paid for them. Other and numerous importations soon followed, and unfortunately some of the cargoes arrived in the worst condition, bringing with them those scourges of the ovine race, the scab and foot-rot. These evils and the increased supply, soon brought them down to less than a twentieth part of their former price; they could now be bought for twenty dollars a head. When, however, it was established by actual experiment, that their wool did not deteriorate as had been feared by many, in this country, and that they became readily acclimated, they again rose into favor. But the prostration of our manufactories, which soon after ensued, rendered the Merino comparatively of little value, and brought ruin to numbers who had purchased them at their previous high prices. The rise which has since taken place in the value of fine wool, as well as the causes which led to it, are too recent and well understood to require particular notice. With the rise of wool, the valuation of the sheep which bear it, has of course kept pace.

The Merino has been variously described. This arises from the fact, that it is but the general appellation of a species, comprising several varieties, presenting essential points and difference in size, form, quality or quantity of wool. The Escurial flocks stand first in point of fineness. Attached to the convent *El Escurial*, within a short distance of the capital, and being the private property of the kings of Spain, no pains or care have been spared upon these beautiful flocks. They are of a good size, and fine form, "combining excellence," as is remarked by an intelligent writer,† "scarcely admitting of improvement." It is supposed that most of the Escurial sheep which found their way into this country, are but indifferent specimens of this celebrated variety of the Merino. Their fleeces are somewhat lighter than those of the Paulars, Negrettis, &c. and altogether they bear a close resemblance to the *genuine* Saxons, of which they are the parent stock.

According to Mr. Lasteyrie,‡ the Negretti "are the largest and strongest of all the Spanish travelling sheep." The Gaudalope "have the most perfect form, and are likewise celebrated for the quantity and quality of their wool." The Paulars "bear much wool of a fine quality; but they have a more evident enlargement behind the ears, and a greater degree of throatiness."

As the last named was one of the principal varieties introduced into the United States, a more particular description of it may not be unacceptable. The sheep of the Paular Convent are large, with heavy, but compared with the Escurial or Saxon, coarse fleeces. The wool of the pure bloods contains a considerable quantity of jarr or hair, and it abounds in yolk to such a degree, that it catches and retains at its extremities much floating dust, the pollen of hay, &c. This gives it a peculiary stiff and hard feeling externally. It, however, forms an excellent protection against storms and cold. The form of the Paular is generally good, but an unusually large dewlap, so plated and doubled, as to go by the popular appellation of "the ruffle," extends from the lower jaw to the brisket, presenting a great obstacle to the shearer, and an unseemly and ungraceful appendage in the eye of the refined breeder. On the sides of the neck, and not unfrequently the face, the skin also lies in loose wrinkles. The head is coarse, and in the male, usually surmounted by large horns. The skill of the American breeder has obviated some of those defects, and there are some few (very few) flocks claiming purity of blood, which have little or no jarr, and an almost entire absence of the throatiness, peculiar to this variety. It is to be apprehended, however, that in most such instances, they owe it to a cross with the Saxons.

There are some other varieties of the Merino, which we shall not pause to describe. Taken collectively, the Spanish rams, according to Chancellor Livingston, yield about eight and a half pounds of wool, and the ewes five, which loses half in washing—making four pounds and

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*Livingston's Essay on Sheep, pages 58, 59.
†Godman's American Natural History.
‡Vol. on Sheep, page 134.
§Essay on Sheep, page 53.
‖Colonial papers of Massachusetts.

*"Archives of Useful Knowledge.—Cultivator, Vol. i, p. 183.
†Cultivator, Vol. 2, p. 150.
‡"Farmer's Series," volume on sheep, p. 155. We quote Mr. Youatt.

a quarter the average weight of fleece of the rams, and two and a half the average of the ewes.* Some varieties considerably exceed this estimate, and probably it would fall short if applied to the prime sheep of any variety. In the celebrated flock of French Merinos at Rambouillet, the average weight, exclusive of tag and belly wool, is six pounds to the fleece. It must be confessed, however, that both Mr. Livingston and Mr. Humphreys assert, that the Rambouillet sheep carry more wool than any of the Spanish flocks.† Col. Humphreys in a letter to the Agricultural Society of Massachusetts, even goes so far as to state, "that the improved stock of France yield *twice* as much wool as those of Spain." Some carefully selected small flocks in this country, which were "salved"‡ after the preceding shearing, have averaged, including the ordinary number of rams, four and a half pounds of wool to the head. The gummy thick wool of the Merino can be but imperfectly cleansed on the back of the animal, where it is the universal custom in the United States to wash it, and probably four pounds of *clean* wool would be as high as the maximum average in the choicest flocks. Few ever go over three and a half.

The Merino, though the native of a warm climate, becomes readily inured to the greatest extremes of cold, flourishing as far north as Sweden, without degenerating in fleece or form.§ It is a patient, docile animal, bearing much confinement without injury to health, and we never have been enabled to discover in it that peculiar "voraciousness of appetito," ascribed to it by English writers.‖ Accurately conducted experiments have shown, that it consumes two pounds of hay per diem, in winter; the Leicester consumes from three and a half to four; and the common wooled American sheep would not probably fall short of three. The mutton of the Merino, in spite of the prejudice which exists on the subject, is short grained, and of good flavor when killed at a proper age, and weighs from eight to ten pounds to the quarter. It is remarkable for its longevity, retaining its teeth and continuing to breed, two or three years longer than the common sheep, or the improved English breeds; but it should be remarked in connexion with this fact, that it is corresponding slowly in arriving at maturity. It does not attain its full growth before three years old, and the ewes in the best managed flocks, are rarely permitted to breed before they reach that age. The Merino is not a good breeder, the bearing ewes giving little milk, and sometimes neglecting their lambs. Eighty per cent would probably be as high as the average number of lambs usually reared.

We have already adverted to the cross between the Merino and the native sheep. On the introduction of the Saxon family of the Merinos, they were universally engrafted on the parent stock—and the cross was continued until the Spanish blood was nearly bred out.—When the admixture took place with pure blooded and prime Saxons, it resulted most favorably. A variety was produced superior to the Merino in form, carrying less wool, but this more than compensated by its increased fineness. The excessive throatiness of the Paulars disappeared, or was greatly diminished. But unfortunately these instances of judicious crossing were rare. Our country was flooded by eager speculators, with the grade sheep and refuse Merinos of Germany. Fineness of wool, during the period of this strange excitement, was made the only test of excellence—no matter how scanty its quantity—no matter how diminutive or miserable the carcase. Governed by such views, the holders of most of our Merino flocks purchased these pseudo Saxons, and the consequence, was, as might have been foreseen, their flocks were ruined.

SAXON MERINO.

In the year 1765, Augustus Frederick, elector of Saxony, obtained permission from the Spanish court to import 200 Merinos, selected from the choicest flocks of Spain. They were chosen principally from the Escurial flock, and on their arrival in Saxony, were placed on a private estate belonging to the elector, under the care of Spanish shepherds. So much importance was attached to the experiment, as it was then considered, that a commission was appointed to superintend the affairs of the establishment; and it was made its duty to diffuse information in relation to the management of the new breed; to dispose of the surplus rams at prices which would place them within the reach of all holders of sheep; and finally, by explaining the superior value of the Merinos, to induce the Saxon farmers to cross them with their native breeds. Popular prejudice, however, was strong against them, and this was heightened by the ravages of the scab, which had been introduced with them from Spain, and which proved very destructive before it was finally eradicated. But when it became apparent that the Merino, so far from degenerating, had improved in Saxony, and that the Saxon wool exceeded the Spanish in fineness and value, the wise and patriotic efforts of the elector began to reap their merited success, and a revolution took place in popular sentiment. The call for rams became so great that the government resolved on a new importation, to enable them more effectually to meet it, and to improve still further the stock already obtained. For this purpose an individual, considered one of the best judges of sheep in Saxony, was dispatched to Spain in 1777, with orders to select three hundred. For some reason—probably because he experienced difficulty in obtaining a greater number presenting all the qualifications he sought, he returned with but one hundred and ten. They were from nearly all the different flocks of Spain, but principally the Escurial,—and were considered decidedly superior to the first importation. In addition to the establishment at Stolpen, already founded, others were now commenced at Rennersdorf, Lohmew, &c.; schools were established for the education of shepherds; publications were distributed by the commissioners to throw information on the subject before the people; and the crown tenants, it is said, were each required to purchase a certain number of the sheep. When we take into consideration the unwearied pains bestowed on this favorite object by the Saxon government—the fact, that the Saxon variety are descended only from the choicest sheep of Spain—and that a degree of care and attention are bestowed on their breeding in the former country entirely unknown in the latter—it is not a subject of surprise, that the emigrant Merino in Saxony excels the parent stock, in the quality of his fleece, and that roundness of form and fineness of bone, which indicate better feeding properties. The Spanish shepherd is little changed from what he was in the days of Cardinal Zimenes, or Pedro IV.—with much practical knowledge of his business, but never dreaming of improvement; and his knowledge strangely blended with prejudices as ancient as the pedigrees of his sheep—running back to a period when Spain was a Roman province. He is *not the owner of the sheep under his care*, but the ill-paid servant of a titled family; or a religious order, who in nine cases out of ten, are no more disposed, or more competent to carry out a system for the improvement of their flocks, than himself. And finally, the Spanish custom of pasturing their sheep during the entire season in large flocks, without inclosures* to render the necessary divisions practicable, entirely prevents that nice adaptation to each other of the male and female selected for breeding—that counterbalancing of the defects of one parent by the marked excellence of the other in the same points, which exhibits the skill of the modern breeder. In Saxony, and the other states of Germany, the case is far otherwise. The electoral flocks, the parent stem, are under the direction of commissioners appointed for their intelligence and knowledge of the subject; and the noted private flocks employ the first agricultural skill of the Saxon land-holders. The low price of labor, too, admits of a degree of attention and constant care over their flocks, unknown in other countries. The attention bestowed upon breeding, may be inferred from the fact, that in many of the largest flocks, every individual sheep is numbered and registered—its pedigree known, and its offspring recorded! The number and age of the sheep is expressed by an ingenious method of marking on the ear, invented by Mr. Thaer, which causes little mutilation, and which effectually distinguishes any number of sheep. "When lambs are weaned, (says Mr. Charles Howard, in a letter to the author of the volume on sheep in the 'Farmer's Series,') each is placed upon a table that his wool and form may be minutely observed. The finest are selected for breeding, and receive a *first* mark. When they are one year old, and prior to shearing them, another close examination of those previously marked takes place: those in which no defect can be found receive a *second* mark, and the rest are condemned. A few months afterwards, a third and last scrutiny is made; the prime rams and ewes receive a *third* and final mark, but the slightest blemish is sufficient to cause the rejection of the animal."

Considerable attention has also been bestowed in Germany on the breeding of grade sheep—a cross between the Merino and the native sheep of the country. These native sheep were of two varieties, and they bore a strong resemblance to the old common stock of the United States—those which were fed on the uplands being smaller and of finer fleece, and the lowland sheep carrying more flesh and coarser wool. The sheep holders, who were unable to purchase pure bloods, resorted to this cross. The wool of some of these flocks, after a few generations, has rivalled even the electoral in fineness; but it loses in quantity, as the native German carried much lighter fleeces than the Spanish sheep. The sheep themselves are much less perfect in form, the means of the common breeder not permitting, and indeed there being no prospect for an adequate return, should he bestow the same labor that the breeder of pure bloods does—sacrifice for the least defect, and, in short, incur the same expenses—when at best, his sheep will not sell for more than one-eighth or tenth of the price of pure bloods.

In 1834, the best Spanish wool sold in the English markets at 2*s.* 6*d.* to 4*s.*; the Saxon at the same time commanded from 4*s.* 9*d.* to 5*s.* 3*d.* per pound.† In the United States, where less difference, and very unjustly, is usually made, the full blooded Saxon sells for about one-third more per pound than the Merino. The fleece in good flocks averages about two and a half pounds, and often, if grown sheep were only included, would rise as high as three. But this is far from the standard of many flocks in the United States, called, and doubtless believed by their owners, to be genuine Saxons. This brings us to a most painful part of our subject, and which we would willingly pass over in silence, were not our obligations to the public paramount to any considerations for the feelings of individuals. In disclosing the frauds practised on the American public, we are compelled for the purpose of doing justice to the innocent and the guilty, and also for the information of those who have been the purchasers of the imported sheep, to go into a minuteness of detail, which would otherwise be uninteresting, and perhaps be deemed censurable.

The following statement was submitted to the committee by Mr. Grove:

"The first importation of Saxony sheep into the United States was made by Mr. ——— ———, a merchant of Boston, at the instance of Col. James Sheperd, of Northampton. They were but six or seven in number. In 1824, Messrs. G. and T. Searle, of Boston, imported seventy-seven Saxon sheep. They were selected and purchased by a Mr. Kretchman, a correspoudent of the above firm, residing in Lepzig, and shipped at Bremen on board the American schooner Velocity. I was engaged to take charge of the sheep on the passage, and I also shipped six on my own account. I am sorry to say, that as many as one-third of the sheep purchased by Kretchman (who shared profit and loss in the undertaking,) were not pure blooded sheep. The cargo were sold at auction at Brookline, as 'pure blooded electoral Saxons,' and thus unfortunately in the very outset the pure and impure became irrevocably mixed. But I feel the greatest certainty that the Messrs. Searle, intended to import none but the pure stock—the fault lay with Kretchman. In the fall of 1824, I entered into an arrangement with the Messrs. Searle to return to Saxony, and purchase, in connexion with Kretchman, from 160 to 200 electoral sheep. I was detained at sea seven weeks, which gave rise to the belief, that I was shipwrecked and lost. When I finally arrived, the sheep had been already bought by Kretchman. On being informed of what the purchase consisted, I protested against taking them to America, and insisted on a better selection—but to no purpose. A quarrel ensued between us, and Kretchman even went so far as to engage another to take charge of the sheep on their passage. My friends interposing, I was finally induced to take charge of them. The number shipped was 167, fifteen of which perished on the passage. They were sold at Brighton, some of them going as high as from $400 to $450. A portion of this importation consisted of grade sheep, which sold as high as the pure bloods, for the American purchaser *could not* know the difference. It may be readily imagined what an inducement the Brighton sale held out to speculation, both in this country and Saxony. The German newspapers teemed with advertisements of sheep for sale, headed '*Good for the American market;*' and these sheep in many instances were actually bought up for the American market at five, eight, or ten dollars a head, when the pure bloods could not be purchased at from less than $30 to $40. In 1826, Messrs. Searle imported three cargoes, amounting in the aggregate to 513 sheep. They were of about the same character with their prior importations—in the main good, but mixed with some grade sheep. On the same year, a cargo of 221 arrived, on German account, Emil Bach, of Lepzig, supercargo. A *few* were good sheep, and of pure blood; but taken as a lot, they were miserable. The owners sunk about $3,000. Next came a cargo of 210, on German account; Wasmuss and Multer owners. The whole cost of these was about $1,125, in Germany. With the exception of a small number, procured to make a flourish on, in their advertisments of sale they were sheep having no pretensions to purity of blood. In 1827, the same individuals brought out another cargo. These were selected exclusively from grade flocks of low character. On the same year the Messrs. Searle made their last importation, consisting of 182 sheep. Of these I know little. My friends in Germany wrote me, that they were like their other importations, a mixture of pure and impure blooded sheep. It is due, however, to the Messrs. Searle to say, that as a whole, their importations were much better than any other made into Boston.

*Essay on Sheep, p. 39.

†Livingston's Essay, p. 71, and note.

‡Rubbed over with a salve, consisting of oil, wax, &c. which adds to the weight of fleece.

§Lasteyrie.

‖"Farmer's Series," p. 149.

*Neither are there inclosures in Saxony; but the division is effected by the bucks being placed in pairs, and the ewes classified and marked. The ewes are from time to time driven in the yard around the pens, and when the teaser has selected one, it is placed in the pen of the buck for which it is marked.

†"Farmer's Series."

"I will now turn your attention to the importations made into other ports. In 1825, thirteen Saxons arrived in Portsmouth. They were miserable creatures. In 1826, 191 sheep arrived in New-York, per brig William, on German account. A portion of these were well descended and valuable animals; the rest were grade sheep. In June the same year, the brig Louisa brought out 173, also on German account. Not more than one-third of them had the least pretensions to purity of blood. Next we find 158, shipped at Bremen, on German account. Some were diseased before they left Bremen, and I am happy to state that twenty-two died before their arrival in New-York. All I intend to say of them is, that they were a most curious and motly mess of wretched animals. The next cargo imported, arrived in the brig Maria Elizabeth, under my own care. They were 165 in number, belonging to myself and F. Gebhard, of New-York. These sheep cost me $65 a head when landed in New-York. They sold at an average of $50 a head, thus sinking about $2,400! I need not say that they were exclusively of pure blood. A cargo of 81 arrived soon after, but I know nothing of their quality. The next importation consisted of 184, on German account per brig Warren. With a few exceptions they were pure blooded and good sheep. We next have on importation of 200, by the Bremen ship Louisa. They are commonly called the '*stop sale sheep.*' They were of the most miserable character, some of them being hardly half grade sheep. The ship Phoebe Ann brought 120 sheep, of which I know little, and 60 were landed at Philadelphia, with the character of which I am unacquainted. Having determined to settle in America, I returned to Saxony, and spent the winter of 1836–7 in visiting and examining many celebrated flocks. I selected 115 from the celebrated Machern, embarked on board the ship Albion, and landed in New-York June 27, 1827. In 1828, I received 80 more from the same flock, selected by a friend of mine, an excellent judge of sheep. I first drove them to Shaftsbury, adjoining the town of Hosic, where I now reside. On their arrival they stood me in $70 a head, and the lambs half that sum."

It should be remarked that the above statements were made by Mr. Grove with the greatest reluctance, and only at the earnest solicitation, or rather *requisition* of the committee, who conceived it their duty to place the would circumstances before the public.

It will be inferred from the facts above stated, that there are few Saxon flocks in the United States, that have not been reduced to the quality of *grade* sheep, by the promiscuous admixture of the pure and impure, which were imported together, and *all* sold to our breeders as pure stock. This accounts in a satisfactory manner for the different estimation in which this breed of sheep are held in Germany and this country,—and for the degeneracy of the pseudo Saxon of the United States.

In its general habits and characteristics—its docility and patience under confinement—as well as its deficiency as a breeder, and its slowness in arriving at maturity, the Saxon bears a close resemblance to the Merino. It consumes about the same amount of food, and is equally remarkable for its longevity. Its mutton, however, is considered of better color, and rather superior in quality.

THE NEW LEICESTER OR BAKEWELL SHEEP.

The unimproved Leicester was a "large, heavy, coarse woolled breed" of sheep, inhabiting the midland counties of England. It is described also as having been "a slow feeder, and its flesh coarse grained, and with little flavor." The breeders of that period regarded only size, and weight of fleece. The celebrated Mr. Bakewell, of Dishley, was the first who adopted a system more in accordance with the true principles of breeding. He selected from the flocks about him those sheep "whose shape possessed the peculiarities which he considered would produce the largest proportion of valuable meat, and the smallest quantity of bone and offal," and having observed that animals of medium size possess a greater aptitude to take on flesh, and consume less than those which are larger, and that prime fattening qualities are rarely found in sheep carrying a great weight of wool, he gave the preference to those of smaller size, and was satisfied with lighter fleeces. To reach the wonderful results obtained by Mr. Bakewell, it was supposed that he resorted to a cross with some other varieties, but it seems now to be well established that he owed his success only to a judicious principle of selection, and a steady adherence to certain principles of breeding.

The improved Leicester is of large size, but somewhat smaller than the original stock, and in this respect fall considerably below the coarser varieties of Cotswold, Lincoln, &c. Where there is a sufficiency of feed, the New Leicester in unrivalled for its fattening properties, but it will not bear hard stocking, nor must it be compelled to travel far in search of his food. It is in fact properly and exclusively a lowland sheep. In its appropriate situation, on the luxuriant herbage of our highly cultivated lands, it possesses unrivalled earliness of maturity, and its mutton when not too fat is of a good quality, but is usually coarse and comparatively deficient in flavor, owing to that unnatural state of fatness which it so readily assumes, and which the breeder, to gain weight, so generally feeds for. The wethers having reached their second year are turned off in the succeeding February or March, and weigh at that age from thirty to thirty-five pounds to the quarter. The wool of the New Leicester is long, averaging, after the first shearing, about six inches, and the fleece weighs six pounds. It is of coarse quality, and little used in the manufacture of cloths, on account of its length, and that deficiency of felting properties, common in a greater or less extent, to all the English breeds. As a combing wool, however, it stands first, and is used in the manufacture of the finest bombazines.

The high bred Leicesters of Mr. Bakewell's stock became shy breeders, and poor nurses, but crosses subsequently adopted, have obviated these defects. In England, where mutton is generally eaten by the laboring classes, the meat of this variety is in very great demand, and the consequent return which a sheep possessing such fine feeding properties is enabled to make, renders it a general favorite with the breeder. Instances are recorded of the most extraordanary prices having been paid for these animals, and Mr. Bakewell's celebrated buck "Two-Pounder" was let for the enormous price of four hundred guineas for a single season! The New Leicester has spread into all parts of the British dominions, and been imported into the other countries of Europe and the United States. They were first introduced into our own country by the late Christopher Dunn, Esq. of Albany, about twenty-five years since. Subsequent importations have been made by Mr. Powel, of Philadelphia, and various other gentlemen.

We conclude this notice of the Leicester, with the following description of what should constitute a perfect animal of this breed, from the "Farmer's Series":

"The head should be hornless, long, small, tapering towards the muzzle, and projecting horizontally forward. The eyes prominent, but with a quiet expression. The ears thin, rather long, and directed backwards. The neck full and broad at is base, where it proceeds from the chest, but gradually tapering towards the head, and being particularly fine at the junction of the head and neck; the neck seeming to project straight from the chest, so that there is, with the slightest possible deviation, one continued horizontal line from the rump to the poll. The breast broad and full; the shoulders also broad and round, and no uneven or angular formation where the shoulders join either the neck or the back, particularly no rising of the withers, or hollow behind the situation of these bones. The arm fleshy through its whole extent, and even down to the knee. The bones of the leg small, standing wide apart, no looseness of skin about them, and comparatively bare of wool. The chest and barrel at once deep and round; the ribs forming a considerable arch from the spine, so as in some cases, and especially when the animal is in good condition, to make the apparent width of the chest even greater than the depth. The barrel ribbed well home, no irregularity of line on the back or the belly, but, on the sides, the carcase very gradually diminishing in width towards the rump. The quarters long and full, and, as with the fore legs, the muscles extending down to the hock; the thighs also wide and full. The legs of a moderate length, the pelt also moderately thin, but soft and elastic, and covered with a good quantity of white wool, not so long as in some breeds, but considerably finer."*

THE SOUTH DOWN.

This breed of sheep has existed for several centuries in England, on a range of chalky hills called the South Downs. They were as recently as 1776, small in size, and of a form not superior to the common woolled sheep of the United States. Since that period a course of judicious breeding, pursued by one man, (Mr. Ellman, of Gluyde,) has mainly contributed to raise this variety to its present high degree of perfection, and that too, without the admixture of the slightest degree of foreign blood. In our remarks on this breed of sheep, it will be understood that we speak of the pure *improved family*, as the original stock, presenting with trifling modifications, the same characteristics which they exhibited sixty years since, are yet to be found in England—and as the middle space is occupied by a variety of grades, rising or falling in value, as they approximate to, or recede from, the pure blood.

The South Down is an upland sheep, of medium size, and its wool, which in point of length belongs to the middle class, is estimated to rank with half grade merino. The average weight of fleece in the hill fed sheep is three pounds, and in the lowland, four pounds. But the Down is cultivated more particularly for its mutton, which for quality takes precedence of all other in the English markets. Its early maturity, and extreme aptitude to lay on flesh, render it peculiarly valuable for this purpose. The Down is turned off at two† years old, and its weight at that age is from 80 to 100 pounds. High fed wethers in England, have reached from thirty-two to even forty pounds a quarter! Notwithstanding its great weight, the Down has, in the language of Mr. Youatt, a patience of occasional short keep, and an endurance of hard stocking, equal to any other sheep. This gives it a decided advantage over the bulkier Leicester, Lincolns, &c. as a mutton sheep in hilly disctricts, and those producing short and scanty herbage. It is hardy and healthy, though in common with the other English varieties much subject to the catarrh or "snuffles," and no sheep better withstands our American winters. The Ewes are prolific breeders and good nurses. The Down is quiet and docile in its habits, and though an industrious feeder, exhibiting little disposition to rove.

A sheep possessing such qualities, must of course be exceedingly valuable in upland districts in the vicinity of markets. Accordingly, they have been introduced into every part of the British dominions, and imported into various other countries. The Emperor of Russia, paid Mr. Ellman, three hundred guineas for two rams, and in 1800 "a ram belonging to the Duke of Bedford, was let for one season at eighty guineas, two others at forty guineas each, and four more at twenty-eight guineas each."* These valuable sheep were introduced into the United States a few years since by Col. J. H. Powell, of Philadelphia, and a small number was imported by one of the members of this committee in 1834. The last were from the flock of Mr. Ellman, at a cost of $60 a head. Several other importations have since taken place.

The following is the description of the perfect South Down by Mr. Ellman, the founder of the improved breed:—

"The head small and hornless; the face speckled or gray and neither too long or too short. The lips thin, and the space between the nose and the eyes narrow. The under jaw, or chap, fine and thin; the ears tolerably wide and well covered with wool, and the forehead also, and the whole space between the ears well protected by it, as a defence against the fly.

"The eye full and bright, but not prominent. The orbits of the eye, the eye cap, or bone, not too projecting, that it may not form a fatal obstacle in lambing.

"The neck of a medium length, thin towards the head, but enlarging towards the shoulders, where it should be broad and high, and straight in its whole course above and below. The breast should be wide, deep and projecting forwards between the fore legs, indicating a good constitution and a disposition to thrive. Corresponding with this, the shoulders should be on a level with the back, and not too wide above, they should bow outward from the top to the breast, indicating a springing rib beneath, and leaving room for it.

"The ribs coming out horizontally from the spine, and extending far backward, and the last rib projecting more than others, the back flat from the shoulders to the setting on of the tail; the loin broad and flat; the rump long and broad, and the tail set on high, and nearly on a level with the spine. The hips wide; the space between them and the last rib on either side as narrow as possible, and the ribs generally presenting a circular form like a barrel.

"The belly as straight as the back.

"The legs neither to long nor to short. The fore legs straight from the breast to the foot; not bending inward at the knee, and standing far apart both before and behind; the hock having a direction rather outward, and the twist, or the meeting of the thighs behind, being particularly full, the bones fine, yet having no appearance of meekness, and of a speckled or dark color.

"The belly well defending with wool, and the wool coming down before and behind to the knee, and to the hock; the wool short, close, curled and fine, and free from spiry projecting fibres."

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* Sheep Husbandry, p. 110.

† Among breeders the sheep is termed a two year old or a two shear sheep until three years old. In this case the sheep is between two and a half and three years old.

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* "Farmer's Series."

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